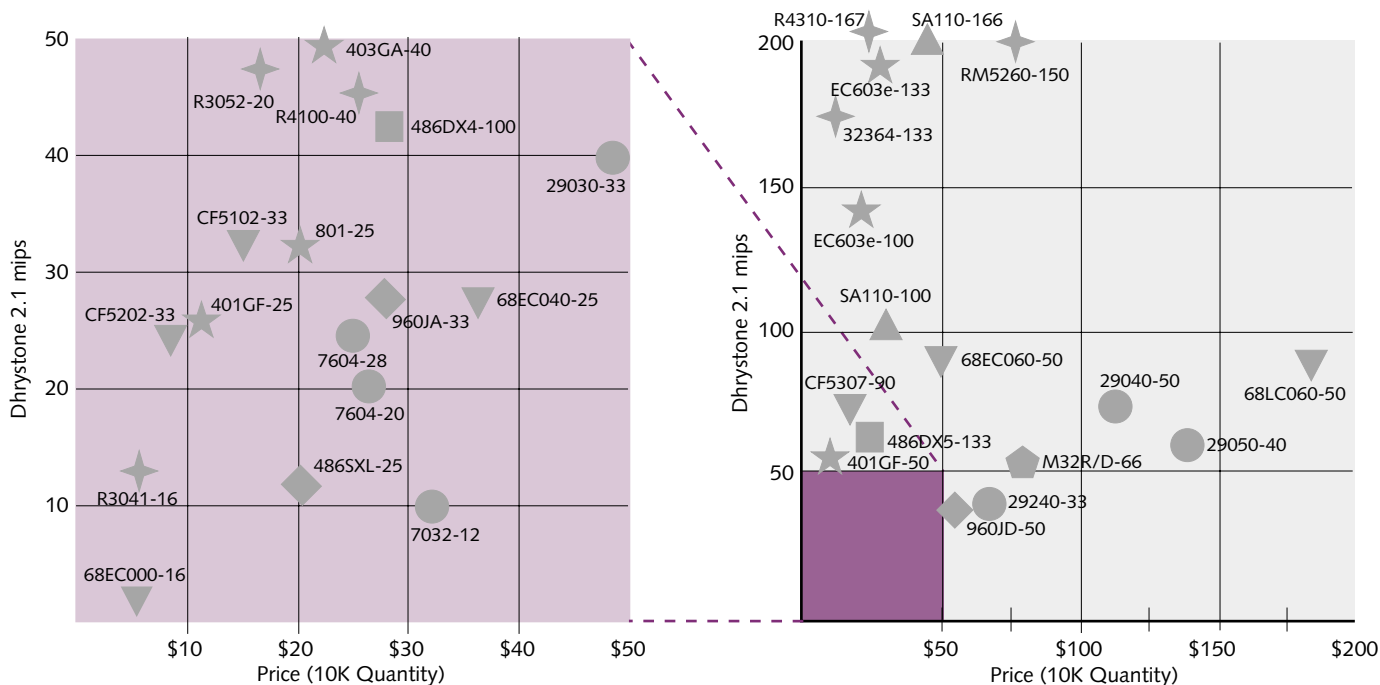
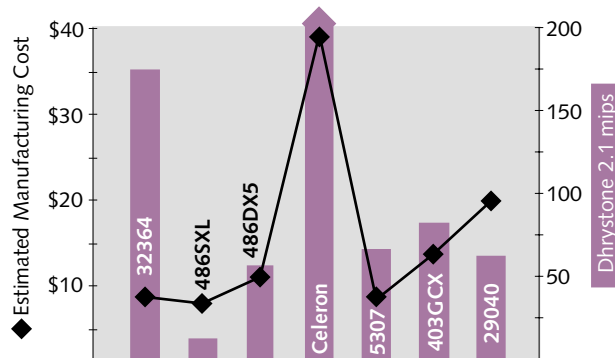


# CHART WATCH: EMBEDDED PROCESSORS



This Chart Watch covers 32- and 64-bit embedded microprocessors, excluding low-power processors. The table below and the chart at the upper right show the performance and price of several embedded CPUs; the chart above is an inset for the lowest-priced products.

The chart on the right compares integer performance (diamonds) and estimated manufacturing costs (bars) for a number of embedded microprocessors according to the MDR Cost Model.



Feature	NEC VR5432	IDT 32364	National 486SXL	AMD 486DX5	Intel Celeron	Motorola CF5307	Motorola EC603e	IBM 403GCX	AMD 29040
Architecture	MIPS	MIPS	x86	x86	x86	ColdFire	PowerPC	PowerPC	29K
Core Freq	167MHz	133MHz	25MHz	133MHz	400MHz	90MHz	200MHz	66MHz	50MHz
Cache (I/D)	32K/32K	8K/2K	1K	16K	16K/16K	8K <sup>†</sup>	16K/16K	16K/8K	8K/4K
FPU?	Yes	No	No	Yes	Yes	No	No	No	No
MMU?	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Bus Width	32 bits	32 bits	16 bits	32 bits	64 bits	32 bits	64 bits	32 bits	32 bits
Bus Freq	66MHz	66MHz	25MHz	33MHz	100MHz	45MHz	100MHz	33MHz	25MHz
Dhrystone 2.1	347 mips*	175 mips	12 mips	57 mips	1,086 mips*	70 mips	283 mips	81 mips	67 mips
Voltage	2.5/3.3V	3.3V	5V	3.3V	1.35/3.3V	3.3V	2.5/3.3V	3.3V	3.3V
Power (typ)	2.5W	0.85W	0.6W	2.75W	10W (max)	792mW	4W	0.4W	1.7W
Power Ratio	139 mips/W	206 mips/W	20 mips/W	18 mips/W	108 mips/W	88.3 mips/W	71 mips/W	202 mips/W	39 mips/W
Price Ratio	11.6 mips/\$	14 mips/\$	0.6 mips/\$	2.1 mips/\$	14 mips/\$	4.6 mips/\$	11.8 mips/\$	4.7 mips/\$	0.5 mips/\$
Transistors	5,800,000	1,000,000	350,000*	1,200,000	28,000,000	n/a	2,600,000	1,820,000	1,200,000
IC Process	0.25µ 3M	0.35µ 3M	0.65µ 3M	0.35µ 3M	0.18µ	0.35µ 3M	0.35µ 5M	0.45µ 3M	0.7µ 3M
Die Size	47mm <sup>2</sup>	29mm <sup>2</sup>	n/a	43mm <sup>2</sup>	103mm <sup>2</sup>	27mm <sup>2</sup>	79mm <sup>2</sup>	47.4mm <sup>2</sup>	119mm <sup>2</sup>
Est Mfg Cost*	n/a	\$9	\$8	\$11	\$39	\$8	n/a	\$14	\$20
Availability	Now	Now	Now	Now	Now	Now	Now	Now	Now
Price (10K)	\$30	\$12.50	\$20	\$26.80	\$75 (1K)	\$15	\$23.80	\$17	\$115

n/a: information not available

<sup>†</sup>with 4K of SRAM

(Source: vendors except \*MDR estimates)